



**PUBLIC  
DOCUMENT**

**Vasquez Boulevard/I-70 Superfund Site  
Community Health Education and  
Outreach Plan**



**Denver Department of Environmental Health  
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## List of Acronyms

ATSDR	Agency for Toxic Substance and Disease Registry
CHP	Community Health Program
CDPHE	Colorado Department of Public Health and Environment
CEASE	Clayton, Cole, Elyria, and Swansea Neighborhood Coalition
CHEOP	Community Health Education and Outreach Plan
COPEEN	Colorado People's Environmental and Economic Network
DEH	Denver Department of Environmental Health
DHHA	Denver Health and Hospital Authority
EPA	U.S. Environmental Protection Agency
HCP	Healthy Children's Partnership
HUD	U.S. Department of Housing and Urban Development
KAPHS	Kids at Play Health Study
NDHC	Northeast Denver Housing Center
NPL	National Priorities List
PEHSU	Pediatric Environmental Health Specialty Unit
ROD	Record of Decision
TRI	U.S. EPA Toxic Release Inventory
VB/I-70	Vasquez Boulevard/Interstate 70 (Superfund Site)

### ***Executive Summary***

The VB/I-70 Community Health Program (CHP) is intended to address the risks to children exposed to arsenic in soil from soil pica behavior and children exposed to lead from multiple sources. There will be three components in the Community Health Program: (1) health education; (2) biomonitoring; and (3) response, including investigations and case management for children identified as potentially exposed. The overall program goal of the VB/I-70 Community Health Program is to develop, implement, and manage a community health program, in collaboration with residents, to reduce residents' exposure to arsenic and lead in soil during the period of soil remediation, to reduce children's exposure to contaminants in soil from soil pica behavior, and to reduce children's exposure to lead from sources other than soil. The CHP will include the following components at a minimum:

- (a) community outreach and education,
- (b) biomonitoring,
- (c) case management for children identified with elevated levels of arsenic or lead, including environmental investigations,
- (d) medical management of elevated cases,
- (e) interagency coordination of response activities,
- (f) program management and administration, and
- (g) data management and reporting.

Outcomes to be achieved by the program include:

- a) Development of an infrastructure that allows continued efforts in the community.
- b) Delivery of contacts and outreach information to every community household at least once per year.
- c) Every child in the community will have had at least one opportunity to participate in biomonitoring.
- d) Outreach and education methods will be evaluated for their effectiveness.
- e) Every community person will have the opportunity to attend at least one community meeting per year.
- f) We will have identified what behaviors are causing exposure and will have worked to change behaviors to reduce exposures.

The program plan was developed in collaboration with community members. Community members decided where, when, and how biomonitoring would occur in their respective communities. The primary mechanism for information delivery will be through paid community health workers, or promotoras. Existing community organizations will also be utilized to provide certain outreach activities, such as leafleting neighborhoods, conducting school presentations, or conducting outreach at neighborhood events. Recommended conceptual messages were agreed upon, with existing fact sheets and materials to be utilized after modification to fit the CHP, as needed. Information will be delivered door-to-door, at community events, and at schools. Door-to-door contacts will be made at the times of day when people are expected to be at home; multiple contact attempts will be performed, if necessary. For the health worker contacts, a multi-pathway conversational flowchart was developed to address lead hazards, the need for testing, and ways to prevent exposure.

### ***Background on Site***

In 1998, CDPHE requested EPA's assistance in sampling residential yards in the Swansea and Elyria neighborhoods of Denver. Smelting activities that began in the 1880s were suspected to have potentially increased levels of some metals in area yards. These metals could pose a health risk to people who live in the area. Based on soil sampling results, EPA added the VB/I-70 site to the National Priorities List (NPL). The NPL is a list of contaminated sites that EPA has prioritized for cleanup.

In March 1998, EPA began a large soil sampling effort in the residential yards, schools, and playgrounds in Swansea, Elyria, and the northern half of the Cole and Clayton neighborhoods. Based on the results of this sampling effort and meetings with community members, EPA expanded the study area to include all of the Swansea/Elyria, Cole, and Clayton neighborhoods, as well as a portion of the Globeville neighborhood. The VB/I-70 site currently includes approximately 4000 residential yards. EPA has sampled more than 3000 of these yards.

Elevated levels of arsenic and lead were found in some of the residential yards throughout these neighborhoods. Levels of both arsenic and lead are lower in gardens than in yard soil. Arsenic and lead levels at area schools and parks are low, and are not of health concern to area children. Arsenic and lead are the metals most likely to be of human health concern in the residential soils in the neighborhoods. So far, EPA's sampling shows yards with elevated arsenic levels occur randomly throughout the entire VB/I-70 site. Some pattern may exist for yards with elevated lead; higher concentrations have been found in the western area of the site.

As part of the final cleanup efforts, EPA will begin another sampling program that again will attempt to gain access to yards not yet sampled to determine whether they need to be cleaned up. As part of the final cleanup, EPA will expand the area to be sampled to include residential yards in a small area from the convergence of Blake Street and Downing Street, south to about 34th Avenue. The soils in this area may have similar elevations of lead as found within the VB/I-70 Site boundaries, based on the pattern for lead observed in the VB/I-70 neighborhoods. In addition to lead, the yards also will be sampled for soil concentrations of arsenic, to be consistent with the VB/I-70 sampling protocol.

In order to assure protection of children in the VB/I-70 site, EPA immediately removed the soil from 48 yards and replaced it with clean soil, as part of initial response activities. The VB/I-70 Record of Decision (ROD) selected a preferred remedy that includes removal of contaminated soils at those homes where arsenic levels exceed 70 parts per million or lead levels exceed 400 parts per million. The selected remedy also includes provision of a Community Health Program (CHP), designed by the community, for the duration of the soil cleanup actions.

### ***Overall Community Health Program Goals***

As stated in the Proposed Plan for the VB/I-70 site, the Community Health Program is intended to address the risks to children exposed to arsenic in soil from soil pica behavior and children exposed to lead from multiple sources. It also will address risks to residents living on soils that are above EPA action levels while they are waiting for an EPA cleanup, and at properties where EPA was denied access to sample. The program will assess risks from any and all potential sources of lead exposure including those that may present a greater risk to children than lead in soil. For arsenic, the program focuses on children with soil pica behavior because the site's soil removal actions are designed to address risks from incidental soil exposure.

There will be three components in the Community Health Program: (1) health education; (2) biomonitoring; and (3) response, including investigations and case management for children identified as potentially exposed. The Community Health Program will be effective in addressing the potential health risks to children with soil pica behavior and the health risks to children exposed to lead from many sources. It will address as many sources of lead as practical. The CHP may also provide a way to evaluate the effectiveness of other site activities.

The Record of Decision describes the required components of the CHP as follows:

"The community Health Program would be composed of two separate (but partially overlapping) elements. The first element would be designed to address risks to area children from non-soil sources of lead, and to the extent that they exist, risks from lead in soils not yet remediated that are above the action level. The second element would be designed to address risks to area children from pica ingestion of arsenic in soil above the preliminary action level of 47 ppm. Participation in one or both elements of the program would be strictly

voluntary, and there would be no charge to eligible residents and property owners for any of the services offered by the community health program... .”

Given the above expectations and input from the community, agreement was reached that the overall program goal of the VB/I-70 Community Health Program is to develop, implement, and manage a community health program, in collaboration with residents, to reduce residents’ exposure to arsenic and lead in soil during the period of soil remediation, to reduce children’s exposure to contaminants in soil from soil pica behavior, and to reduce children’s exposure to lead from sources other than soil.

The CHP will include the following components at a minimum:

- a) community outreach and education,
- b) biomonitoring,
- c) case management for children identified with elevated levels of arsenic or lead, including environmental investigations,
- d) medical management of elevated cases,
- e) interagency coordination of response activities,
- f) program management and administration, and
- g) data management and reporting.

A Community Health Education and Outreach Plan (CHEOP) was needed in order to conduct effective community outreach and education efforts, and to coordinate efficiently with other program components.

### ***Process for Development of the CHEOP***

#### **Community Involvement**

In order to develop and implement the Community Health Program, it was important that community members be actively involved and that a wide variety of viewpoints be represented. It was agreed that:

- (a) DEH would establish the steering committee to address administrative issues and lay groundwork for biomonitoring activities that would commence in 2004.

- (b) Individual community members would decide where, when, and how biomonitoring would occur in their respective communities.
- (c) Individual community members would decide where, when, and how health education would occur in their respective communities.

In order to identify and develop community health education and biomonitoring goals, a number of community involvement mechanisms were employed. From the beginning, the EPA and DEH were asked to make the CHP planning process a community-driven process, and DEH has sought to honor that request. The CHEOP was developed using numerous community meetings in a variety of forums. The meeting agendas, minutes, and other pertinent documents are presented in the appendices to this report (see Appendices A and B for lists of community meetings).

The neighborhoods involved in obtaining Superfund status and then advocating for their communities formed a group called CEASE that has been in place for several years. CEASE represents the Cole, Clayton, Elyria-Swansea, and south Globeville neighborhoods. DEH staff held regular meetings with CEASE representatives, focusing on development of the CHEOP. DEH staff also contacted all of the registered neighborhood organization leaders from neighborhoods included in the ROD, and invited them to send representatives to the meetings. Interested communities nominated representatives from their respective neighborhood organizations to participate in CEASE. The representatives presented the concerns of their neighborhood residents to the group at large, and reported to their neighborhood organizations about the progress of the plan. The CEASE-sponsored community meetings were held twice each month (see Appendix B for a list of meetings and associated materials).

At the suggestion of the CEASE members, an outside facilitator was hired. Focused conversation, consensus workshop and action planning processes were used for obtaining input from the community members. These structured participation methods are inclusive, enable groups to be more responsive to change, and allow for creative decision making. As some of the parties involved in the plan felt more comfortable with traditional facilitation methods, some meetings were organized using more traditional processes, to honor those requests.

Community leaders suggested that some community meetings be held in the evening or as part of a regularly scheduled neighborhood organization meeting to insure that all residents had the

opportunity to participate in developing the CHEOP (see Appendix A for a list of meetings and associated materials). As the CEASE meetings were held during the day, some community members had difficulty attending these meetings yet still wished to provide input. Presentations and requests for input to the CHEOP were made at the evening meetings. The Cole Organizing Alliance Meeting and the Clayton Neighborhood Association asked DEH to gather input as part of the group's regularly scheduled meetings. For the most part, contact with groups that requested evening or Saturday meetings were made on a one-time basis, as these groups either had provided representatives that were attending the regular CEASE meetings, or the groups had requested that a follow-up presentation be made when the CHEOP was completed.

In addition, DEH scheduled and held four community meetings in attempts to reach a broad spectrum of the VB/I-70 site population. Announcements for these meetings were distributed through weekly folders at area schools, and through announcements at Early Head Start locations (See Appendix A).

Some neighborhood representatives participating in CEASE requested that the Spanish-speaking participants in their organization be given additional time to share their ideas. A bilingual DEH staff person conducted confidential small group interviews in which the participants recommended using more mass media to reach the Spanish-speaking community, as they indicated their neighbors were reluctant to attend community meetings.

DEH also established the CHP Steering Committee to address administrative issues, provide a mechanism for coordination and information-sharing between governmental agencies, and develop technical components for biomonitoring and response actions to commence in 2004.

#### **Existing Community Strengths and Weaknesses**

The data in Table 1 describes some of the characteristics of each VB/I-70 neighborhood.

**Table 1. Characteristics of VB/I-70 site Neighborhoods**

Community	Total Community Members (n)	Persons in Poverty (n)	Percent Monolingual Spanish-speaking Families (%)	Percent Children Less than Age 6 (%)	Percent Housing Built Before 1940 (%)	Percent Renter Occupied (%)
Clayton	5,172	1,470	28.5	11.3	39.7	43
Cole	5,662	1,487	40.5	12.1	56	51.7
Swansea/Elyria	6,708	1,853	42.5	12.7	32.3	39.3
Globeville	3,454	758	35	10.6	48.5	37.3
Total	20,996	5,568				

**Community Strengths**

Community members reflected numerous strengths of their respective communities. These community strengths are expected to strengthen and improve the CHP.

The communities have strong leaders that are committed to changing their neighborhoods for the better. They are extremely committed to improving the lives of the children within their community, and working with other community members to do so, whether they are Black, Latino, White, young, or older. The commitment is demonstrated by numerous activities and organizations already existing within the communities. Attendees at many of the meetings in many venues reflected the diverse population and the commitment to honoring this diversity.

Community members also are represented by strong and committed organizations. The VB/I-70 community (Swansea/Elyria, Globeville, Cole, and Clayton) has agreed to be represented by a strong organizational group named CEASE. The CEASE members present their community's feedback during meetings with government agencies and report back to their individual communities about the issues addressed. Numerous other community-based organizations, both new and established, serve the community and represent its diverse interests. These organizations include the registered neighborhood organizations, Cross Community Coalition, the Cole-Clayton Neighborhood Alliance, COPEEN, the Swansea/Elyria Community Development Center, and numerous churches and faith-based organizations. Additional organizations providing service to the community include Inner-City

Health Clinic, Northeast Denver Housing Center (NDHC), Head Start programs, and Children's Hospital School-based Health Program. Several organizations publish neighborhood newsletters in which CHP information can be distributed. Other organizations have block captains that may be available to disseminate information.

Another community strength that should add to the success of the CHP is the knowledge, expertise, and relationships built through participation in the VB/I-70 Working Group, which has been meeting on site-wide issues since 1998. Due to this history, members were familiar with many technical aspects of the site, with health issues associated with arsenic and lead exposure, and with the Superfund regulatory framework. There also has been significant outreach and education about the VB/I-70 site from both EPA and the communities that has provided for a higher level of knowledge regarding the site within the communities at large. Additional information and education on the VB/I-70 site, such as will be provided by the CHEOP, will be of benefit to the community.

In addition, the VB I-70 community leaders are committed to the Community Health Plan and to complete community participation in the soil testing and remediation of contaminated soil. Community members have provided assistance to EPA in gaining access for testing and remediation, and in suggesting ways to improve communications.

Another asset to the community that should aid in acceptance of the CHP is that remediation has begun and is in progress within the community. Community members can see the benefits of yard cleanup and have hope that the overall project will be completed and be successful. Soil removals, to date, have resulted in improved appearances for area yards, causing some community members to overcome initial fears of the remediation process.

The Kids At Play Health Study (KAPHS) contributed a great deal to the community by testing many neighborhood children for blood lead and arsenic levels during the summer of 2002. The KAPHS study provided baseline data on blood lead levels in the VB/I-70 neighborhoods. The study also benefited greatly from community involvement, and was an example of agencies and community working in partnership to accomplish joint goals.

In Cole and Clayton, the Healthy Children's Partnership programs provide lead poisoning education and limited in-home lead paint testing, through separate grant funding. Neighborhood youth provide educational outreach and community workers are trained to conduct education and paint testing. The Healthy Children's Partnership programs are currently administered through the Northeast Denver Housing Center (NDHC).

The Northeast Denver Housing Center also manages and administers a large grant from the federal Department of Housing and Urban Development (HUD) agency, which provides funding for lead-paint abatement in the homes of lead poisoned children. Should VB/I-70 area children be identified with elevated blood lead levels resulting from deteriorated lead paint, we anticipate that families can be referred to NDHC and they may be eligible for federally-funded lead paint abatement of their homes. In addition, although perhaps not directly related to CHP activities, the City and County of Denver has designated the neighborhoods as Enterprise Zone or Focus Neighborhoods to assist with economic development activities.

Staff from DHHA, CDPHE, EPA, ATSDR, DEH, and other agencies provide their expertise with the community, both because of Superfund site-related activities as well as other community endeavors. During CHP implementation, bilingual DEH staff will be available to train the trainers, as well as provide guidance to the community health workers and organizations conducting the environmental health education activities. DEH staff have a substantial amount of experience in managing grants related to lead poisoning prevention activities. Recent DEH grants have focused on the use of promotoras (community lay health workers) to educate Spanish-speaking communities about lead hazards, and the use of school-based outreach programs to promote lead poisoning prevention by emphasizing hand washing activities and increased dietary calcium intake.

#### **Weaknesses**

As in any community, the VB/I-70 communities have some weaknesses that may make success of the CHP more difficult. As the program is implemented, we must remain aware of these factors and take steps to address them in order to accomplish program goals.

Although CEASE and the neighborhood organizations have successfully represented the VB/I-70 community, involvement in civic affairs appears to be limited to relatively few individuals in proportion to the community population. Perhaps this lack of involvement could be attributed to the fact that area residents must work more hours than is the norm in more affluent communities and they do not have time for participation. Another serious weakness is the lack of participation in community affairs by Spanish-speaking residents, given they make up from 35–60 percent of the population in these communities. This lack of community involvement may be attributed to persons with less formal education, the large number of undocumented residents, a limited knowledge of the English language, and many residents being unfamiliar with “how the system works” in the United States. In addition, the Spanish-speaking residents, both documented and undocumented, often have a distrust of government activities and government agencies. This distrust has been documented by a number of authors (*e.g.*, Linton, C., 1999. *10 Steps to a More Accurate Census Count of Minorities and Immigrants*. Illinois Ethnic Coalition, Chicago, Ill, <http://www.medill.nwu.edu/iec/Survey.html>).

Although the neighborhood organizations have had great success in collaborating on environmental issues, another community weakness is the friction between a few individuals in different neighborhood organizations that sometimes results in competing agendas or an unwillingness to attend common meetings.

Lastly, these neighborhoods have to deal with many difficult issues in addition to those specific to the Superfund site. The neighborhoods face a variety of environmental issues, poverty-related economic concerns, and ethnic and race-related concerns, the latter particularly because of the large and relatively recent increase in immigrant residents. Due to the many competing concerns, community residents sometimes are overwhelmed by VB/I-70 site issues and choose to deal with the other issues that immediately present themselves.

Furthermore, despite widespread efforts at community education, some members of the public remain confused about site cleanup issues. Community members have expressed misunderstanding as to why some yards are receiving cleanups, while other yards are left unchanged. Also, there appears to be a lack of understanding as to why VB/I-70 community members are not receiving monetary compensation, while residents in another nearby community did receive compensation in an earlier

settlement of environmental issues. This appears to have led to concern and confusion on the part of some residents.

All communities have their strengths and weaknesses, the VB/I-70 area included. The VB/I-70 area is fortunate to have community leaders involved and committed to education and prevention, pediatric testing, environmental sampling for lead and arsenic, and the soil remediation program. In review, the weaknesses strongly suggest the need for a culturally sensitive and community-based outreach and health education program.

### **Environmental Justice Concerns**

The VB/I-70 site is an Environmental Justice site because the community is predominantly low income, minority, and is disproportionately affected by environmental impacts from many sources including industry, other Superfund sites, and major transportation corridors. The selected remedy includes a Community Health Program that will address soil pica behavior, as well as sources of lead exposure other than soil, such as lead-based paint inside homes. The CHP is an attempt to address cumulative environmental sources and their impacts in this Environmental Justice community. The EPA has asked input from, and has worked with, community representatives to develop the design of this program and for help in implementation.

The VB/I-70 communities are affected by air emissions from many industries that operate in the area, as well as having received historic emissions from several smelters. The 1998 Regional Geographic Initiative conducted by Cross Community Coalition identified emissions sources for zip code 80216<sup>1</sup> that include the following: mobile sources (vehicles), bakeries, manufacturing facilities, printers, metal shops, vehicle repair shops, refineries, and a coal-burning electric power plant. EPA's Toxic Release Inventory (TRI) database reports that 339,884 pounds of chemicals were released to the air from industries in the 80216 zip code for the year 2002, the last year for which data are available. While not specifically addressing air emissions, the CHP is an attempt to address the cumulative sources of exposure for the chemicals of concern (i.e., lead and arsenic) for the VB/I-70 site, since it has been designated as an Environmental Justice community.

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<sup>1</sup> Zip code 80216 is not contiguous with, but includes approximately the northern half of the VB/I-70 site.

### **What Has Worked in Other Communities**

A review of the literature was conducted at the request of the CEASE VB/I-70 CHEOP working group to determine what methods had worked in similar community health projects. DEH staff collected data by searching computerized bibliographic databases and by contacting organizations currently conducting community-based health programs in predominantly Latino communities. The studies selected from the data bases were conducted during the past five years. Additional information was drawn from the cancer, diabetes and HIV prevention fields, because research was lacking on lead poisoning prevention interventions publicized in recent community or public health journals or in government databases. The criteria for inclusion were whether the program was conducted in a predominantly Latino low-income community and if the program was able to demonstrate significant progress toward meeting the program objectives. Eighty-three studies were identified from the literature as meeting the inclusion criteria. Thirty-four of the 83 identified studies involved environmental health interventions. The different approaches used by the successful programs were categorized according to the type of intervention utilized:

- Health systems change (primarily health care provider education/program coordination)
- School-based interventions with a parent education component
- Risk reduction
- Landlord training
- Renovation
- Drama
- Computer-based learning
- Information repositories
- Surveillance programs
- Mass media or social marketing campaigns
- Support groups for parents
- Education through visual art
- Education utilizing professional community health educators
- Education utilizing community health workers
- Combination programs utilizing at least two of the above mentioned intervention methods.

Twenty-nine of the published intervention programs in Latino communities utilized community health workers, fifteen utilized professional community health educators to educate the community residents, nine used media campaigns, and seven utilized a school-based approach. Eight programs utilized combinations of the five most popular types of intervention. Table 2 shows the categories of interventions utilized in the programs reviewed; some sources were counted in more than one category.

Education utilizing community health workers	29
Education utilizing professional community health educators	15
Mass media or social marketing campaigns	9
Combination programs (also counted in other categories)	8
School- based	7
Health systems change	6
Renovation	4
Drama	3
Risk reduction	3
Education through visual art	2
Surveillance programs	2
Landlord training	1
Computer based learning	1
Information repositories	1
Support groups for parents	1

Only programs were selected that demonstrated success in meeting program objectives while working with a predominantly Latino community. As can be seen in Table 2, education utilizing community health workers was the most preferred method among programs showing success. Other intended components of the CHP were also successful, including health system change and renovation training.

## **Community Goals and Expectations for the CHP**

### **Goals for the CHP**

During meetings, community members considered certain requirements important in describing the community health program. The following factors were listed as important components of the CHP by the participating community members:

- (a) CHP would be in effect until soil removal is finished.
- (b) The CHP would provide biomonitoring to look for exposures.
- (c) The CHP is intended to protect children from all lead hazards, not just hazards from lead in soil.
- (d) The CHP will educate community members about the soil removal program.
- (e) The CHP will educate community members, especially families with young children, about lead and arsenic hazards.
- (f) The CHP will educate about pica behavior in children.
- (g) Education and outreach on the CHP will be provided for all families.
- (h) There will be community involvement in developing and providing the community health plan.
- (i) The program will address health risks for residents.
- (j) Participation in the program is voluntary and free of charge.
- (k) The program will make resources available to conduct the community health program.
- (l) The CHP will provide a response to identified exposures.
- (m) Environmental clean-up will be provided under ROD requirements.
- (n) After many years of work, the community and agencies came up with a program with which they can live.

It is important that the above facts and benefits be honored in the planning and implementation of the CHP, in order to create a CHP that provides benefit to the community.

### **Expected Benefits of the CHP**

The community members recognized that the CHP can provide numerous benefits to the community that include the following, listed below. The plan should be designed, implemented, and adjusted as needed to accomplish these benefits for the community.

- a) Help prevent exposures before they occur, through education and outreach activities.
- b) Involve the community in prevention, education, and outreach to utilize community strengths and partnerships and reach community members not normally reached through standard methods.
- c) Minimize potential exposures to site chemicals of concern (COCs) during the timeframe in which the site remedy is being implemented, but is not yet complete.
- d) Reduce children's exposure to sources other than soil. Especially for lead, it is well documented that there are multiple potential sources of exposure, including deteriorated lead-based paint, the predominant source of exposure for most children.
- e) Ensure that community members are appropriately tested (biomonitored) for exposure to the contaminants of concern.
- f) Ensure that community members with elevated levels of exposure are provided with appropriate follow-up investigation, referral, and mitigation.
- g) Ensure that the community becomes an integral component of ensuring that a protective remedy is implemented.
- h) Identify and provide interventions for children exhibiting pica behavior. Typically, pica children require interventions in addition to those provided by a simple soil removal program. This is because they are at risk for health effects from contaminants such as lead in soil, even at urban background levels.
- i) Verify remedy effectiveness. It is important to collect data on remedy effectiveness to ensure that a protective remedy has been selected. Data can be evaluated periodically to address community concerns regarding the protectiveness of the remedy.
- j) Develop infrastructure, knowledge, and skills within the community to allow continued health education and health promotion efforts in the community.

### ***Expected Outcomes for the CHP***

After discussing goals and expected benefits from the CHP, the group agreed that a number of quantifiable outcomes should be expected from the program. These quantifiable outcomes are described below:

- 1) An infrastructure will be established that allows continued efforts in the community. Because of the high mobility of Denver residents, the communities are united in their desire to insure that the lead poisoning prevention messages are part of ongoing community health efforts even when EPA funding is no longer available. In addition, it is DEH's goal that city agencies will develop capacity to conduct education and outreach with community assistance, develop the skills and infrastructure necessary to manage biomonitoring data and utilize data to understand and plan for public health impacts of lead poisoning, and improve the capacity for agencies and communities to work together to prevent lead poisoning. In years two and three of the CHP, agencies will be inventoried for availability of resources and capabilities, and methods will be determined to continue providing the lead poisoning prevention messages into the future.
- 2) Contacts and information will be delivered to every community household at least once per year. Community members expressed the desire for every household to be contacted at least once a year, over the initial three-year period. This is particularly important, since Denver residents frequently move from neighborhood to neighborhood. Households will be tracked by address to ensure that at least one contact is made per year, regardless of whether there is a change in occupancy. Yearly household contact will help to identify new residents, so that outreach and education efforts can be provided. As new residents are identified, they will be provided with the full suite of CHP services.
- 3) Children will be offered biomonitoring, as discussed in the site record of decision. Every child will have had at least one opportunity to participate in biomonitoring. Community biomonitoring sites will be well-publicized through the neighborhood newspapers, school folders, and through public service announcements in the local media outlets. For each biomonitoring event, information on the event will be provided through door-to-door contacts, weekly folders, or leaflets to ensure that each household within the targeted neighborhoods will be notified of the availability of testing. Youth workers can play an important part in alerting CHP staff to homes with young children who are in need of testing.
- 4) The effectiveness of the outreach and education efforts will be evaluated. Households will receive surveys asking what is effective and what is not. A representative sample of households will be asked to complete an evaluation. The evaluation will include a section to

determine which behaviors, if any, were changed by the residents to reduce the incidence of exposure to lead and arsenic. Community listening sessions will be held as requested with neighborhood organizations, and at least once a year for the 3-year duration of the formal CHP. Process evaluations shall be conducted on a regular basis as part of the community health worker training. Process tracking will also be conducted to ensure that necessary contacts have been made.

- 5) Every community person would have had the opportunity to attend at least one community meeting per year. Meetings will be scheduled to discuss the CHP, at least once per year. Mini-evaluations will be conducted at each community listening session and will also be part of the general CHP evaluation. The evaluation will include questions about which meetings were attended, if any, what participants felt about the information presented and about meeting logistics, and will solicit suggestions for improvement.
- 6) We will have identified what behaviors are causing exposure and will have worked to change behaviors to reduce exposures. Environmental investigations will be conducted for all children with elevated blood lead or arsenic biomonitoring results. Individual cases will be tracked to understand what exposures caused the elevated levels, and data will be aggregated in order to understand what sources and behaviors are causing exposure. Interventions will be evaluated to identify which interventions were successful at reducing exposure levels.

### ***Components of the CHEOP***

#### **Outreach Methods Preferred by the Community**

As a result of the CHEOP planning process, community members reached consensus on how the community outreach and education program should be conducted. The “who, what, how, when, where” of the program specifics are described in the sections below, and are briefly listed in Table 3. For example, it was decided that promotoras will deliver the “lead is bad” message to families by going door-to-door, and attempting a minimum of three contacts per year at each residence. Similarly, the group decided that youth could deliver a variety of messages to other youth, in venues that include school science classes and environmental clubs. The group reached consensus on a number of additional program specifics that are listed in Table 3 and further discussed below.

<b>Table 3. Summary of CHP Outreach Components</b>				
<b>Who Delivers</b>	<b>Messages</b>	<b>How Delivered</b>	<b>Audiences</b>	<b>Frequency</b>
Promotoras	Lead is Bad	Door-to-door	Families	3 attempts/yr
	Get your kids/home/yard tested	Locations for presentations	Grandparents	others as scheduled by promotoras or DEH
	What you can do	Churches	New home buyers	
	Resources	Boticas		
	Sources of Poison	Clinics		
	You have the power	Out side schools		
	Simple info on home renovation	ESL classes		
		Events, fairs, picnics		
		Preschools		
		Story Circles		
		Neighborhood Groups		
Youth	Same as promotoras	Science Classes	Children/ Youth	As scheduled by DEH
		Env. Clubs	Children/ Youth	School classes 1/yr each class
		Churches	Grandparents and Families	Events - as occur
		Events		community meetings as occur/ scheduled
		Fairs		
		Picnics		
		Neighborhood groups		
		backup for door-to-door later on, depending on skills, safety, assistance needed		
DEH	same as promotoras but as backup QA	Same venues as above, but as oversight	same	
	safe renovation - more complex info	contractor meetings	contractors/ inspectors	groups annually
	importance that info gets out	training sessions	real estates	training every two weeks
	process – tracking and evaluation	schools	principals/ teachers	
	How to train	training sessions	promotoras & training	
	Inspection, Regs and Notification	realtor meetings	landlords	
		Landlords		
Trainers	Safe work practices	training sessions	contractors	as needed

### **Who**

Participants in all community meetings, including those hosted by CEASE and neighborhood organizations, emphasized the importance of using paid community health workers from the neighborhood to carry out most educational activities. The community health worker model (in Spanish, community health workers are called “promotores” or “promotoras”) calls for members of the community to be the primary point of contact for community members, once the workers are trained in the subject matter, preferred delivery methods, and other program specifics. Promotoras also will be expected to conduct outreach at neighborhood events and may assist in presentations at schools. The strength of the promotora model is that community members reflect the make-up of the community and are more accepted than “outsiders”. Ideally, the promotoras will be trusted and respected members of the community and will be familiar with the neighborhoods and neighborhood leaders. They will also be reflective of the neighborhood’s diversity. They are a mechanism of utilizing the communities’ strengths while directing program resources into the communities.

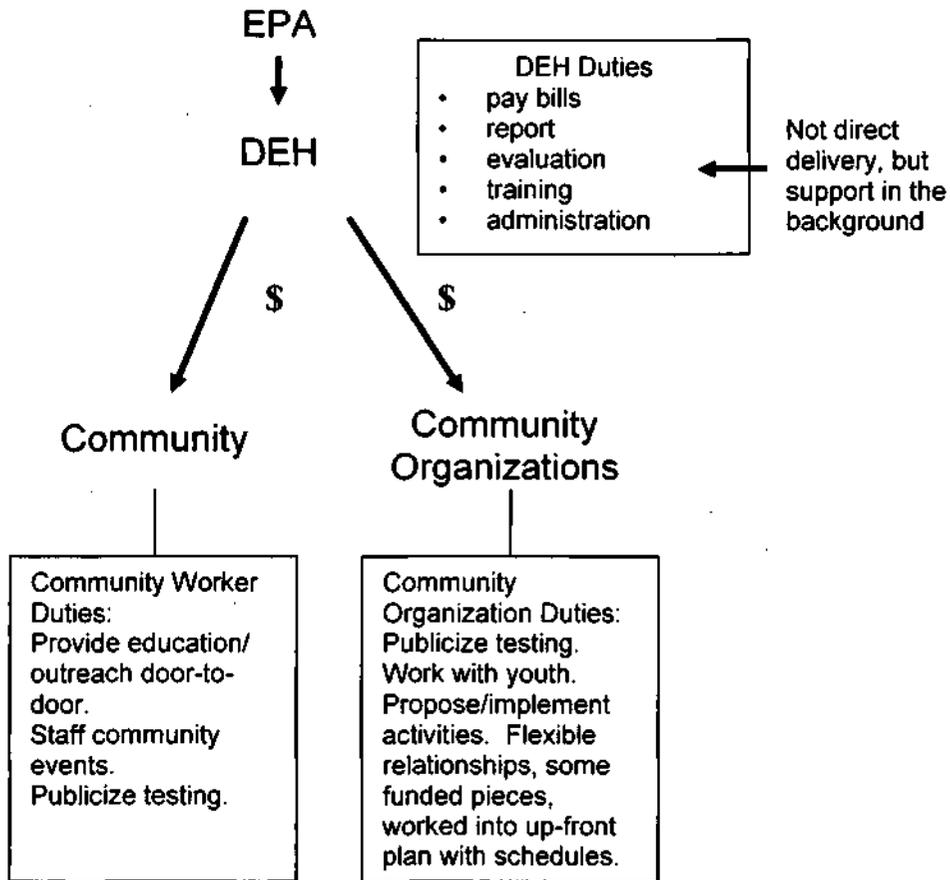
Some neighborhood groups expressed a preference for continued support of their intergenerational Healthy Children’s Partnership (HCP), currently funded by a separate grant. The HCP consists of trained volunteers, primarily youth, who canvass the neighborhoods for families willing to have their homes evaluated for lead hazards. The emphasis is on local residents, especially youth, being used to educate the community. Other community representatives expressed concern regarding youth being involved in the project in door-to-door education, as they felt that previous efforts had resulted in inconsistent messages being given to residents. These representatives assimilated the results from other community meetings and voiced approval for youth being involved in the program as presenters at schools and events and to conduct outreach, if supervised by a trained adult, but not be involved in door-to-door education. The youth are to receive the same training as the other community personnel with an emphasis on message consistency.

A preference was expressed that existing community organizations be incorporated into plan implementation. Community organizations are recognized as bringing a number of strengths, in that they know the community, are trusted by community members, and will know of events, locations, and organizations where outreach may be appropriate. In addition, they have greater ability to utilize existing capacity within the community, such as youth groups, and they bring community energy to the project. At the same time, DEH has concern regarding adding another layer of oversight between

DEH and community workers, due to the resultant increases in both overhead costs and complexity of organization, oversight, quality assurance, and evaluation. The group agreed that the promotoras that would be tasked with door-to-door outreach would be under the direction of DEH. The group also agreed that community organizations would be well-suited to provide certain outreach activities, for example: leafleting neighborhoods for particular events, conducting a school event, or planning and conducting outreach presentations at neighborhood events.

Conceptually, the organizational relationship would involve DEH contracting with a community organization to implement agreed-upon work-plans; see Figure 1, below. Community organizations would be encouraged to develop brief workplan proposals (one-half to one page) that could be funded by the program.

**Figure 1. Community Education and Outreach Organizational Relationship**



DEH intends to work with any neighborhood group that wishes to be involved, but as with all participants in the program, quality work will be required. The group agreed that if one neighborhood group is working on a small project (such as leaflet distribution), it is best to give them the job for the whole neighborhood, versus splitting the project between groups which could lead to confusion.

Youth must be well supervised in terms of the quality of their work and for their safety while working within the community. The training and supervision of youth workers would include an emphasis on message consistency throughout the neighborhoods.

All community workers initially will be trained on lead hazards, outreach methods, informational materials, and evaluation mechanisms, and be provided with regular updates. The "promotora training manual" will provide details regarding expectations for the promotoras. DEH will conduct regular updates and training sessions, initially envisioned to occur on an every-other-week basis, to ensure that outreach workers understand the information materials and expected outreach, tracking and evaluation mechanisms, and to address and resolve any problems that come up in the field. Training and oversight will be provided by DEH. Existing educational materials will be utilized for worker training purposes, as appropriate.

Some outreach and education activities will not be conducted by community members, as DEH or another agency may more appropriately provide the contact. For example, it is expected that DEH or another agency will conduct lead-safe home renovation training for contractors and "do-it-yourself" homeowners, at least initially. Also, DEH expects to be the primary point of contact for school nurses, principals, and other officials within the neighborhoods. It is expected that the Pediatric Environmental Health Specialty Unit (PEHSU), with assistance from ATSDR, will provide medical provider education. In general, however, DEH anticipates its role to be related to administering the CHP, providing training, reporting, evaluation, planning, and organization. While DEH may have some community outreach contact, such as arranging school visits or setting up a meeting with realtors, DEH anticipates doing very little of the direct community interaction. Instead, direct community interaction would be done through community health workers that are hired, trained, and supervised by DEH.

### **What**

The community representatives agreed on what conceptual messages were important to be transmitted to residents. Table 4 includes the recommended conceptual messages. Community members also expressed strong preferences that we “don’t reinvent the wheel” and that existing fact sheets and educational materials be utilized. After identifying conceptual messages, the groups reviewed numerous existing informational materials to identify preferred fact sheets, identify materials that best captured the recommended conceptual messages, and identify needed modifications. Informational materials for review were requested and obtained from various agencies, including the EPA, ATSDR, NDHC, CDPHE, and other state and local agency lead poisoning prevention programs. Materials for review included simple book marks, fact sheets, coloring books, brochures, posters, and more detailed informational booklets. The materials were reviewed in English and in Spanish, to evaluate the adequacy of translation. Copies of the materials that were reviewed are included in the appendices (See Appendix C).

Copies of review materials were provided to the group in advance. A series of meetings was held over a period of several weeks to obtain group input on the materials. The review process was enabled by using the focused conversation group facilitation method. Group consensus was reached after an extensive review process that included consideration of effectiveness of message communication, cultural appropriateness, visual appeal, appropriateness of reading level and use of graphics. Table 5 lists the materials that were evaluated, the preferred materials selected for use in the CHEOP, and the modifications desired within the preferred materials in order to tailor them to VB/I-70 site residents.

**Table 4. Recommended Educational Messages for the VB/I-70 CHEOP**

<u>Renovation</u>	<u>Steps to take</u>	<u>Resources</u>	<u>Sources of poisons</u>
Renovate homes safely	Home cleaning (windowsills and floors)	Real specific information on the help available	Keys contain lead. Don't lead kids play with keys
Keep kids away from loose or chipping paint	If adults/kids work in yards wash their clothing when they come in	Soil removal is available	Don't use cookware or pottery with lead based glaze
Wash hands and face after playing outside (kids and adults)	Don't let small children play on the porch (old homes)	Attend community meetings to learn more about lead and arsenic	Multiple forms: lead paint, soil, pottery, etc
Safe home remodeling	Don't let your kids play in dirt	These are the resources available to reduce exposure to lead	Ararcon and Greta are poison
Replace or paint over chipped paint on all surface	Spray surfaces to be cleaned with water (to reduce dust)		Lead is in our neighborhood
	Good hygiene prevents lead poisoning		Unexpected lead sources
	Good nutrition helps prevent lead poisoning		
	Hygiene		
	How to protect yourself/kids		
	Good nutrition		
	Wash hands and face and wipe feet when kids come in		
	Don't let kid eat dirt or paint		
	Don't let your children eat dirt - and why		
	Wash window sills weekly		
<u>Kid and testing</u>	<u>Home testing</u>	<u>Lead and arsenic are bad</u>	<u>You have the power</u>
Have children under 6 yrs. tested for Pb based paint	Have you tested your family and house for lead lately? Now you can.	Lead poisoning... Still a problem	You can take actions to protect your kids
Get your children tested	Test home and soil	Lead-free is the way to be	These are the steps I can take to reduce my exposure to lead
Follow up for elevated blood lead levels	If you have an older house, test it for lead paint	Lead paint hurts kids for life!	
Test children for exposure		Pb education for kids, parents	
Your health and your family's health may be at risk. Come in for a screening.		Effects of Pb on kids	
Test child		Lead hurts kids	
Get your kids tested		Lead and Arsenic are dangerous.	
<u>Other</u>			
Culturally sensitive delivery			

**Table 5. Summary of Informational Materials Reviewed for the VB/I-70 CHEOP**

Title of Item	In General Liked It	Readability Level	Clarity of Message	Good Layout	Good Graphics	Contains Some of Our Message	Culturally Appropriate	Value/How Use
1. General information brochures, flyers, packets, etc.								
a. You Can't Prevent Lead Poisoning! Here's How	Use as a checklist. Very good for this.							
b. El Programa de la Prevención de Envenenamiento por Plomo de Colorado	X	EASY	NOTE: the details on these first four (a-d) became irrelevant as group became more clear about what they liked and what they wanted. However, the info appears at the end of the chart. Useable pieces are highlighted in LIGHT GRAY.					
c. Cómo proteger su salud/How to Protect your Health	X	VERY EASY	Change to legal size sheet, adding a column with contact info. Add window sills illustration. To handwashing, at end add "and before eating.:"					
d. Fact Sheet: Some Facts About Soil Sampling in the Neighborhood		9TH GRADE?	ONLY THE PICTURE PAGES SEE SPECIFIC RECOMMENDATIONS			YES		Weekly folders & posters for schools
e. LA INTOXICACIÓN CON PLOMO EN LOS NIÑOS	X	type font too small	good content + check list; needs good context & better stats	X	X	X	different vocabulary	Pediatrician's office - has all info, explain, use as needed
f. what every parent should know about LEAD LEVELS IN CHILDREN	mixed review	needs work!	?		X	P. 7, 13	NOT	
g. Too bad the early warning signs of lead poisoning aren't this obvious/Lástima que las primeras señales del envenenamiento por plomo no sean tan claras	X	X	X	X	X had discussion re tape, now ok with it	X	X	FOR ALL HOUSEHOLDS - primary piece - value is simple and readable
h. (EPA) Lead Poisoning And Your Children	Use as a poster only. Really like it for that purpose. Needs correct contact info (local) - Spanish is available.							
i. Is your home haunted by lead paint?	Use info, but redo without Halloween theme & make a bookmark for mass distribution (schools, libraries...)							
i. Protect your child from lead poisoning	© issue?	too high						
k. Protect Your Family From Lead in Your Home/Proteja a Su Familia en Contra del Plomo en su Casa					X	Effects of lead -- doesn't appear anywhere else -- very important, also include info from 3c, 3d, 3e		Create a special piece from this information - 1st visit use -- rest as additional info and/or for training
l. What everyone should know about LEAD POISONING	X	language issue				Check for consistent message	Spanish available	Could be an additional info piece
m. ASTDR additional pictures 1-page color	Simple pages for additional visits - also for schools, school nurses							
n. NEW PIECE: Introduction card	Simple piece that has persons name and organization and why they are there -- with full contact info							

**Table 5 (continued). Summary of Informational Materials Reviewed for the VB/I-70 CHEOP**

<b>2. Home remodeling information</b>								
a. Renovating your home safely								
b. Reducción de los riesgos de contaminación por plomo cuando remodela su casa								
c. Lead in your home: a parent's reference guide								
<b>3. Specific information about lead and arsenic</b>								
a. Datos sobre el plomo y arsénico en el suelo residencial (E/S) plus more in English								
b. Eating Vegetables from Your Garden... (E/S)	An important piece but simplify (remove first paragraph & put at bottom: If your soil has not been tested call now! xxx- Very important for these neighborhoods. Use on first visit!							
c. Lead in Home Remedies	Merge these two with English on one side, Spanish on the other, use for training & later visits							
d. Otros Orígenes de Plomo								
e. Possible Sources of Lead								
<b>4. Blood lead testing</b>								
a. Child Lead Poisoning is Preventable/E. envenenamiento infantil con plomo se puede prevenir	Need something for 1st visit as the under 6 handout -- this can be the basis of something new or different, or simply be edited.							
b. ¿Qué significan los valores de plomo en la sangre de su niño?/What does you child's blood lead level mean?	Training use, after corrected							
<b>5. Nutrition</b>								
a. Alimentos que Combaten El Envenenamiento con Plomo	Rework and use -- no fighter. Change color scheme, use a different, more appropriate Spanish menu							
b. Lead Poisoning Nutrition and Children: what you should know/El envenenamiento con plomo la nutrición y los niños: lo que usted debe saber								
c. Lead and a Healthy Diet								
d. Combata el Envenenamiento con Plomo con una dieta saludable	Great recipes -- general handout SECOND visit; use as is, available in English & Spanish							
e. Iron/Calcium/Vitamin C								
<b>6. For Children</b>								
a. Let's Learn About Lead Poisoning	for homes with children, SECOND visit; and for preschool/day care sites							
<b>7. For Landlords</b>								
a. The Lead-Based Paint Pre-Renovation Education Rule	Combine these two pieces and send them to all landlords. Also use with contractors.							
b. Lead Paint Can Poison: Are Your Tenants at Risk?								
<b>8. Home Investigation</b>								
a. Testing Your Home for Lead in Paint, Dust, and Soil	For Northeast Denver Housing Center (NDHC)							

**Table 5 (continued). Summary of Informational Materials Reviewed for the VB/I-70 CHEOP**

<b>9. Temporary Measures to Reduce Lead Hazards</b>								
<b>a. Lead Hazards &amp; the Removal of Lead-based Paint</b>	For remodel packet; homes with contractors, including guests; paint stores							
<b>b. Proteja a Sus Hijos del Plomo: Como Limpiar Las Ventanas Correctamente/Keep Your Children Safe From Lead! How to Clean Your Windows the Right Way</b>	Use only for homes with children under 6 and adapt to Denver							
<b>c. Temporarily Reducing Lead Paint Hazards by Cleaning</b>	Use if home or child is positive for lead							
<b>10. Provider Education</b>								
<b>a. Colorado's Lead Poisoning Prevention Program</b>	All the responsibility of ATSDR							
<b>b. Childhood Lead Poisoning in Colorado</b>								
<b>11. Lead Hazards from Work Sites</b>								
<b>a. New piece ATSDR may have this</b>	Due to the hazard of children picking up lead from clothing and hands of people who work with lead.							
<b>General items details from above:</b>	<b>In General Liked It</b>	<b>Readability Level</b>	<b>Clarity of Message</b>	<b>Good Layout</b>	<b>Good Graphics</b>	<b>Contains Some of Our Message</b>	<b>Culturally Appropriate</b>	<b>Value/How Use</b>
<b>a. You Can! Prevent Lead Poisoning! Here's How</b>	X	OK	? Needs better title; good check list	Cluttered	X	X - some key things	X	
<b>b. El Programa de la Prevención de Envenenamiento por Plomo de Colorado</b>	X	EASY	1978, not 1940; --> lead glaze - U.S.	X	X	X	needs notice: English/ Spanish on other side	
<b>c. Cómo proteger su salud/How to Protect your Health</b>	X	VERY EASY	X - add window sills	X	X	X		
<b>d. Fact Sheet: Some Facts About Soil Sampling in the Neighborhood</b>	X in use now, box of info with #s	9TH GRADE?	X - check some numbers, old	X	NONE - map has unhelpful placement	YES	???	Weekly folders & posters for schools
<b>OTHER COMMENTS:</b>								
Important for ALL double sided two-language pieces -- need notice: English/ Spanish on other side								
In Spanish: INTOXICACIÓN is better than envenenamiento to refer to poisoning OR use both words								

### **Where**

Preferred venues for information delivery include door-to door contacts as the primary mechanism, but they should not be limited to door-to-door. It was agreed that contacts and information dissemination are also important at health fairs, community events, church events, school presentations, science fairs, and science class presentations. In addition, programs to reach real estate agents and building renovators are very important, and need to be geared towards locations or venues where these people can be reached successfully. Information should be available at hardware and paint stores, for example, to reach contractors or people who are re-painting their own homes.

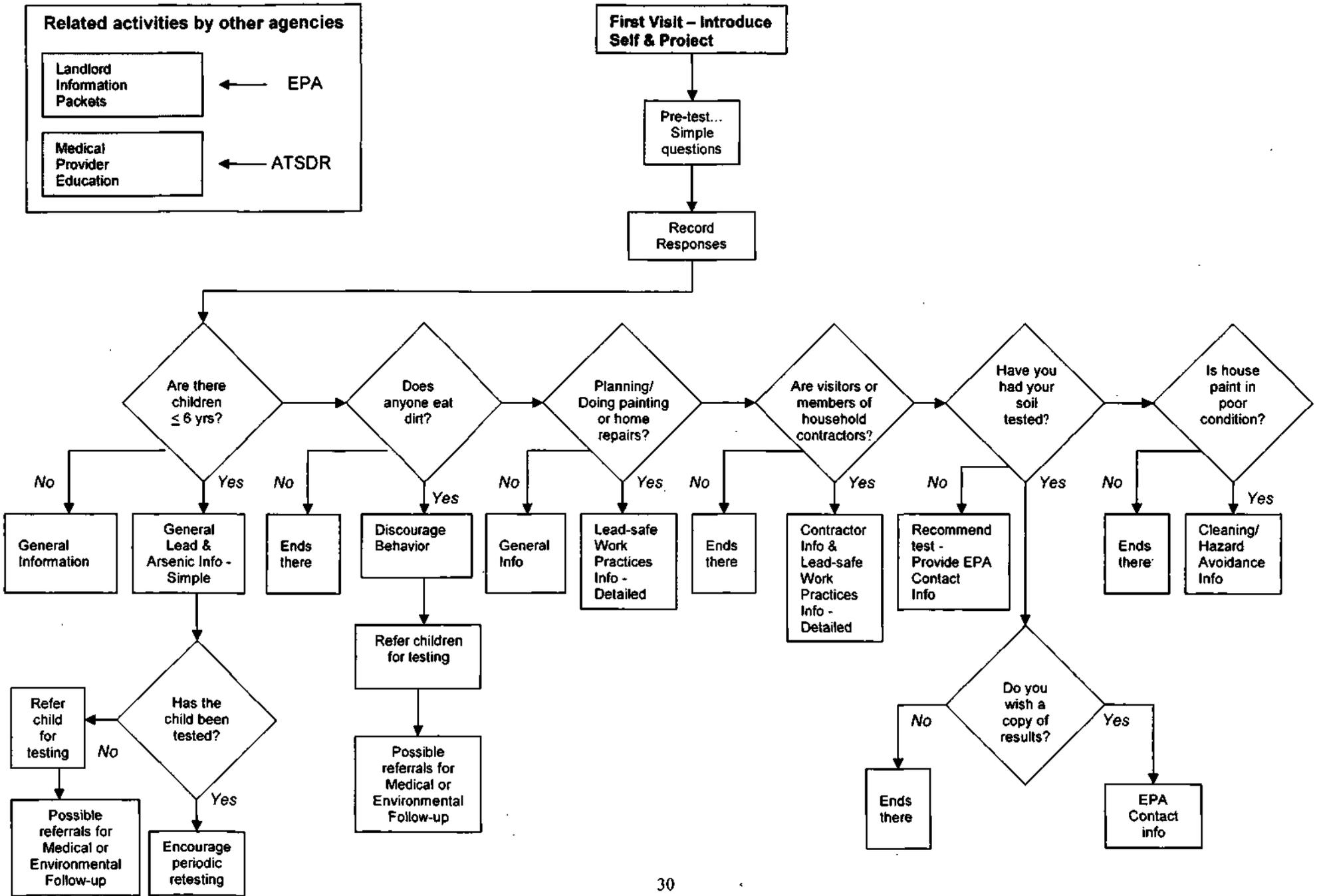
### **When**

Contacts must be made when people are expected to be at home, so some evening and weekend visits will be required. If a daytime contact is not successful at a particular home, it is expected that an evening contact will be attempted. In order to provide yearly contacts at each home to discuss lead and arsenic issues, numerous contact attempts may be required.

### **How**

A flowchart was developed and agreed to that describes the expected conversational pathway, once a successful contact has been made. Conversation paths were discussed and developed for the following topics: the hazards of lead poisoning, has your yard soil been tested, have your children been tested, and are you considering any home repairs or re-painting. It was agreed that information concerning each of these paths would be presented to the resident, however, more detailed information on a particular topic would be highlighted, if appropriate. For example, if a family had children under age six, the importance of blood lead testing would be emphasized more strongly than if the residents were older with no children visiting the home. As another example, if a resident were considering home repairs, information on lead-safe home renovation would be stressed, and more detailed materials on that subject would be provided. Figure 2 presents the flowchart describing potential conversational pathways for a promotora's first-visit contact.

**Figure 2. Flowchart for First-Visit Contact by Health Education Outreach Worker**



A “promotora tool kit” also will be developed that will consist of 3-ring binders created for each block or block group. The binder will contain checklists prepared for each home on the block, so that contacts can be tracked as they are attempted and completed. The binders could also be used to track informational brochures provided at each home, and specifics regarding the home. For example, for the home located at 4504 XYZ Street, after a successful initial contact, the tracking system would contain information regarding the number of children at that home, whether the yard had been tested, what information had been discussed with the resident, and any notes for further conversations. Likewise, if the contact attempt at 4508 XYZ Street was unsuccessful, the notebook would reflect the unsuccessful attempt and the need for repeated contact attempts. Tool kits would also contain needed informational materials.

The binders will provide a house-by-house history of contacts and results and thus would be useful in reviewing promotora progress, identifying problems, identifying homes needing repeated visits, conducting evaluation of program and individual performance, and ensuring that necessary follow-up is provided, even if a replacement promotora is needed to provide the follow-up. See Appendix D for a draft outline of the Promotora Training Curricula and Tool Kit that is under development.

### **Evaluation mechanisms**

The group agreed that on-going evaluation of the program is necessary. Evaluation mechanisms need to be relatively simple, at an appropriate literacy level, and in English and Spanish. The group agreed to use an evaluation tool devised by DEH for its “Raising Awareness” lead poisoning prevention grant, which utilizes the Transtheoretical Stages of Change model to evaluate progress in changing behaviors. A draft version of the Evaluation Tool and Supportive Evaluation Guidelines is presented in Appendix E. Process evaluation tools will also be used to track contacts made, promotora awareness, and materials distributed.

### **Reporting mechanisms**

CHP activities will be reported to EPA and the community as described below.

- Monthly report to EPA on activities conducted, contacts made, plans for next month, problems, resolution.
- Quarterly report to EPA with preliminary evaluation data.

- Annual report to EPA with formal evaluation results.
- Promotoras will attend neighborhood association(s) meetings monthly and DEH staff will attend meetings at least quarterly; but could do so more often on request, to report results to the community.

**Ongoing Communication, Feedback and Revision of CHP Activities**

DEH and other agency representatives will be available to meet with community members or community oversight representatives to provide an opportunity for on-going communication, and feedback regarding the implementation of the program. The frequency, content, and schedule of these meetings will be determined by consulting with community members.